

JAPAN

EDICT OF GOVERNMENT

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JIS B 6555 (1990) (English): Test methods for performance and accuracy of band saw stretcher

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*The citizens of a nation must
honor the laws of the land.*

Fukuzawa Yukichi

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JAPANESE INDUSTRIAL STANDARD

Test methods for
performance and accuracy of
band saw stretcher

JIS B 6555—1990

Translated and Published

by

Japanese Standards Association

In the event of any doubt arising,
the original Standard in Japanese is to be final authority.

JAPANESE INDUSTRIAL STANDARD

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Test methods for performance and
accuracy of band saw stretcher

B 6555-1990

1. Scope

This Japanese Industrial Standard specifies the test methods related to functions, running performances, rigidities and working accuracies and inspecting methods on qualities of the band saw stretcher of which maximum width of band saws capable of being processed is 305 mm or under specified in JIS B 0114.

Remarks 1. The applicable Standards to this Standard shall be as given in the following:

JIS B 0114 Glossary of Terms for Wood Working Machinery

JIS B 6507 General Code of Safety for Wood Working Machinery

JIS B 6521 Methods of Measurement for Noise Emitted by Wood Working Machinery

JIS G 3131 Hot-rolled Mild Steel Plates, Sheets and Strip

JIS G 3302 Hot-dip Zinc-coated Steel Sheets and Coils

JIS G 3303 Tinplate and Blackplate

JIS Z 2244 Method of Vickers Hardness

2. The units and numerical values given in { } in this Standard are based on the traditional unit system and are appended for informative reference.

2. Methods of Functional Tests

The functional tests on the band saw stretcher shall be in accordance with Table 1.

Reference Standards:

JIS B 6501-Test Code for Performance and Accuracy of Wood Working Machinery

JIS Z 8203-S1 Units and the Use of their Multiples and of Certain other Units

Table 1. Functional Tests

No.	Test item	Test method
1	Electric equipment	Before and after the running test, examine the insulating condition once each
2	Start, stop and running operation of roll	At an appropriate speed of rotation of the roll, carry out 10 times of start and stop repeatedly to examine the smoothness and reliability of the actions.
3	Changing operation of speed of rotation of roll	Change the speed of rotation of the roll over overall marked speeds of rotation to examine the smoothness of action and reliability of indicating of operating device.
4	Pressurizing operation of roll	Carry out the pressurizing operation of the roll to examine the smoothness and reliability of actions.
5	Operation of supporting device of upper frame	Carry out the engaging and disengaging operation of the supporting device of the upper frame to examine the smoothness and reliability of actions.
6	Operation of travelling device of roll in axial direction	Allow the device to travel in axial direction of the roll to examine the smoothness and uniformity of motions throughout overall length.
7	Operation of band saw guide	Examine the smoothness and reliability of the functions.
8	Safety device	Examine the reliability of the safety functions to the workers and protective functions for the machine (see JIS B 6507).
9	Lubricating device	Examine the reliability of such functions as the oil tightness and proper distribution of the oil quantity.
10	Oil hydraulic apparatus	Examine the reliability of such functions as the oil tightness and pressure regulation.
11	Pneumatic apparatus	Examine the reliability of such functions as the air tightness and pressure regulation.
12	Accessories	Examine the reliability of the functions.

Remark: For the band saw stretcher which is not provided with the said function, the corresponding test item to this in Table 1 shall be omitted.

3. Running Test Methods

3.1 No-load Running Test Allow the roll to rotate and continue running for 30 to 60 minutes, and, after the bearing temperature has been stabilized, measure the required electric power and noise. Record respective items specified in the Record Form 1 of Table 2, and, at the same time, observe that no abnormal vibration has taken place by the sense of touch.

Furthermore, the measurement of the noise shall be in accordance with JIS B 6521.

Table 2. Record Form 1

No.	Time of measurement hour. minute	Speeds of rotation of roll min ⁻¹ {rpm}		Temperatures °C				Required electric power			Noise dB (A)	Description	
				Main spindle bearings		Room tempera- ture	Voltage V	Current A	Input kW				
		Marking	Actual measure- ment	Upper						Lower			
				Front	Rear					Front			Rear

- Remarks 1. For that which is provided with the change gear of the speed of rotation of the roll, record on at least 2 levels of speed of rotation including the maximum speed of rotation.
2. As regards the measuring conditions of the noise, record in the description column.

3.2 Load Running Test Carry out roll stretching, measure the required electric power and noise, record on respective items specified in the Record Form 2 of Table 3, and, at the same time, observe that no abnormal vibration has taken place and the conditions of rolled face by the sense of touch.

In addition, confirm that the band saw is being sent out in vertical direction in respect to the roll axis.

Furthermore, the measurement of the noise shall be in accordance with JIS B 6521.

In the measurement of the required electric power, carry out the test by changing the pressurizing force at a definite feed speed or by changing the feed speed at a definite pressurizing force.

Table 3. Record Form 2

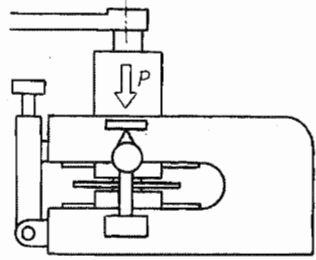
No.	Band saw			Roll		Cutting conditions			Required electric power					Noise	Description	
	Dimensions			Material	Diameter	Hardness	Speed of rotation of roll	Feed speed	Pressurizing force	Voltage	Current	Inputs				Rolling power
	Length	Width	Thickness									No-load	Load			
mm	mm	mm	mm	HV	min^{-1} {rpm}	m/min	N {kgf}	V	A	P_0 kW	P_1 kW	$P_1 - P_0$ kW	dB (A)			

Remark: As regards the measuring condition of the noise, record in the description column.

4. Method of Rigidity Test

The rigidity test of the band saw stretcher shall be in accordance with Table 4.

Table 4. Rigidity Test

No.	Test item	Measuring method	Diagram for measuring method
1	Rigidity of frame	Apply the test indicator fixed to the lower frame to the upper frame, apply a load (P) to the roll of the specimen, and measure the relative displacement between the lower frame and the upper frame. Carry out this measurement on the both iside faces of the frame.	

- Remarks 1. The rigidity test of the machines of the same design shall be represented by the test results carried out on a representative set, and for others, may be omitted.
2. The load (P) to be applied to the roll shall be the recommended magnitude by the manufacturer, and its value shall be recorded.

5. Hardness

The hardness of the rolls shall be as given in the following:

- (1) The hardness of the upper roll and lower roll shall be HV 720 or over, and the dispersion of the hardness shall be HV 60 or under.
- (2) The difference of hardness between the upper roll and the lower roll shall be HV 60 or under.

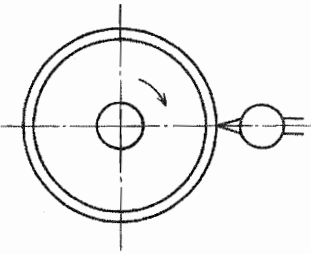
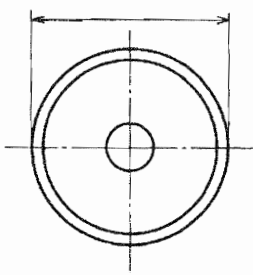
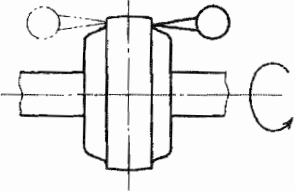
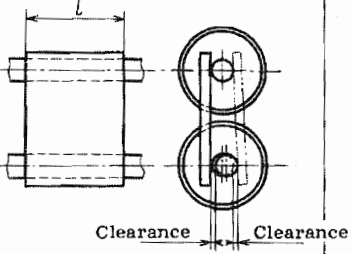
6. Inspecting Methods on Qualities

6.1 Hardness Inspection The hardness of the roll, shall be inspected in accordance with JIS Z 2244, and conform to the requirements of 5.

6.2 Static Accuracy Inspection The inspecting method on static accuracy of the band saw stretcher shall be in accordance with Table 5.

Table 5. Inspection on Static Accuracy

Unit: mm

No.	Inspection item	Measuring method	Diagram for measuring method	Permissible value
1	Runout of outer peripheral face of roll	Apply a test indicator to the center of the outer peripheral face of the roll, rotate the roll manually, and consider the maximum difference of readings of the test indicator to be the measured value. Carry out this measurement on the outer peripheral faces of the upper roll and lower roll.		0.02
2	Difference of outer diameter between upper roll and lower roll ⁽¹⁾	Measure the maximum diameters of the central parts of the upper roll and lower roll with a micrometer, and consider the difference thereof to be the measured value.		0.02
3	Axial runout of roll ⁽²⁾	Apply a test indicator to the outer periphery of end face of the roll, rotate the roll manually, and measure the maximum difference of readings of the test indicator during rotation. Carry out this measurement at the outer peripheries of the right end face and left end face, and consider the largest value thereof to be the measured value. In addition, carry out this measurement on the outer peripheries of end faces of the upper roll and lower roll.		0.02
4	Parallelism of upper roll and lower roll	Apply a flat plate of 100 mm in length (<i>l</i>) vertically to the upper roll shaft and lower roll shaft, and measure the clearance with a feeler gauge. Carry out this measurement at both faces of roll shaft and take the largest measured value among them as the measured value.		0.03

Notes ⁽¹⁾ To that of which one side roll is of a free driving, this is not applied.

⁽²⁾ This may be carried out in the stage of parts.

7. Method of Working Accuracy Test

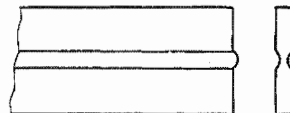
The working accuracy test of the band saw stretcher shall be as follows.

7.1 The band saw, when rolled into the required shape, neither abnormal torsion nor uneven levelling shall be generated.

7.2 When the specimen ⁽³⁾ has been rolled at the center of longitudinal direction ⁽⁴⁾ at a definite axial distance between the upper roll and the lower roll, no torsion, nor camber, nor lateral bend shall be generated.

In addition, the end of the rolled plate shall protrude in a smooth circular arc shape as given in Fig. 1, and of which section shall be rolled in a bisymmetrical circular arc shape.

Fig. 1. End of Plate



Notes ⁽³⁾ The material of the specimen shall be of JIS G 3131, JIS G 3302 and JIS G 3303, and be less in strains and uneven hardness. Dimensions are as given in the following.

Thickness: 0.70 mm, 0.90 mm and 1.05 mm

Width: 30 mm

Length: 7000 mm (that of endless shaped)

⁽⁴⁾ The magnitude of the roll pressurizing force shall not be such that causing any waving on the rolled face due to excessive elongation of the specimen, and shall be so adjusted that the protrusion on the elongated end part is made larger as far as possible.

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Edition 1

Japanese Text

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